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MCCRACKEN & FRANK LLP
311 S. WACKER DRIVE
SUITE 2500
CHICAGO, IL 60606

EXAMINER	
LEUBECKER, JOHN P	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

Office Action Summary	**Application No.** 10/677,874	**Applicant(s)** MALACKOWSKI ET AL.	
	Examiner John P. Leubecker	**Art Unit** 3739	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 May 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *35,37-40,44-48,50,52-71 and 74-80* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *35,37-40,44-48,50,52-71 and 74-80* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Claim Objections

1. Claims 35, 58, 62, 68, 76 and 80 are objected to because of the following informalities: claims should NOT have footnotes. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. Claims 37 and 52-54 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 37 depends from itself. It appears that this claim should depend from claim 35 and will thus be treated as such for examination purposes.

As to claims 52-54, "the plurality of *infrared* light emitting diodes" lacks antecedent basis in that only a plurality of light emitting diodes have previously been recited.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 35, 37-39, 44-47, 50, 52-71are rejected under 35 U.S.C. 103(a) as being unpatentable over Chader et al. (U.S. Pat. 5,617,857) in view of Acker et al. (U.S. Pat. 6,453,190) and further in view of Schulz (U.S. Pat. 5,622,170).

As to claim 35, and referring to Figure 1, Chader et al. disclose at least one smart instrument (12), wherein the at least one smart instrument includes a housing (Fig.2), a plurality of LEDs (20, col.6, lines 64-66) coupled to the housing, a memory circuit (36) having stored information thereon related to the instrument, and a first transceiver (note interface of wires with the instrument, Fig.2), a computer system (14,16,18,28), and a sensor system (16) adapted to wirelessly sense the position of the at least one smart instrument (col.5, lines 35-42) and to transmit position information to the computer system (col.5, lines 48-67), wherein the sensor includes a sensor array (e.g. 22) which includes a plurality of position sensors (see 22, 22, 22, Fig.1) adapted to sense position information from the LEDs (col.5, lines 38-42 and 55-65), wherein the first transceiver transmits the stored information to a second transceiver (note interface of wires with system 14) of the sensor array (col.6, lines 18-24) and the second transceiver transmits a request from the sensor system to the first transceiver to fire in a predetermined manner (col.7, lines 3-7).

Chader et al. disclose hardwired bi-directional (col.6, lines 49-56) communication adapted to transmit the information to the computer system with wires (see Fig.2) and thus fails to disclose wireless transceivers for transmitting such information (thus requiring first and second transceivers). Acker et al. discloses an analogous tracking system (note Abstract) and explicitly teaches that although the connection between the instrument and the computer uses wires, such wires can be replaced by a wireless infrared telemetry link (col.11, line 61 to col.12, line 4). Acker et al. further explicitly teaches that such use of a wireless connection avoids "the physical encumbrance of loose wires trailing from the instrument" (col.12, lines 3-4). In view of this teaching regarding a directly analogous portion of the Chader et al. reference, it would have been obvious to one of ordinary skill in the art at the time of the invention to have provided a wireless infrared connection in place of the wired connection of Chader et al. The Examiner takes the position that since communication is bi-directional, such infrared link must include transceivers (so that both the instrument and the system can transmit and receive the signals).

The Examiner takes the position that the sensor array must be able to distinguish between the LEDs in order to determine their positions. Since Chader et al. fails to teach that the LEDs are all of different wavelengths or that the LED controller (44) is anything more than a circuit which controls the firing of the LEDs (col.7, lines 3-7), the Examiner believes that independent firing of the LEDs, one at a time, is inherently encompassed by Chader. However, since this is an arguable position, for completeness, the Examiner cites Schulz as evidencing that it is known in this art to independently fire the LEDs one at a time in order to distinguish them for recognition by the sensors (note time multiplexing, col.5, lines 54-60, as opposed to other ways of differentiation, col.6, lines 3-9, including pulse duration and frequency). Therefore, if not inherent, it would have been obvious to the skilled artisan to have used a differentiation technique known and used in the art in the Chader et al. system.

It is noted that, upon modification to use wireless signals as discussed above, control of the LEDs by LED controller (44) would automatically be accomplished through the wireless transceivers.

As to claim 37, the information includes calibration information.

As to claims 38 and 39, first and second transceivers can use infrared or radio signals (Acker, col.11, line 61 to col.12, line 4)

As to claims 44-47, the computer system includes a monitor (28) which is capable of displaying an image of a patient and a representation (graphic) of the instrument (col.5, line 62 to col.6, line 2).

As to claim 50, the computer system includes a localizer (14), a computer workstation (18) and a monitor (28).

As to claims 51-54, Chader et al. disclose that the localizer (14) is adapted to receive position information from the sensor system, determine the relative positions of each of the plurality of LEDs and transmit the positions to the computer (col.5, lines 38-42 and 55-65).

As to claims 55-57, Chader further includes a patient tracking system (reference frame 24) including a universal tracker device (26) coupled to the patient tracking system and including a validation point (col.9, lines 55-67). The sensor system is capable of wirelessly sensing the position of the universal tracker device and transmit position information to the computer system (col.5, lines 59-62).

As to claims 58 and 62-68, drawing from that disclosed above, Chader et al. further disclose that the patient tracking system (24), which can constitute a second smart instrument, can include an memory module (36, col.9, lines 30-37). Since obviousness to use a wireless connection, as taught by Acker et al., would naturally apply to the connections of all instruments, this would anticipate a patient tracking system/second instrument comprising a housing, transceiver (use of memory module and LED controller would require two-way communication) and independently fireable lights. Chader further discloses that the system is capable of, for each instrument, sending a signal identifying the instrument, receiving status information from the instrument (col.6, lines 49-56), and sending a request (from LED controller 44) to fire each of the lights independently (as discussed above with respect to claim 35). The Examiner takes the position that, since it would be impossible for the sensors to detect the positions of the instruments if the LEDs for each instrument were fired concurrently, the LEDs are inherently fired consecutively for each instrument. Such cycling would inherently require the LEDs on the particular instrument NOT being sensed to be OFF, meeting the limitation of claim 68. Further as to claim 62, the instrument, which can constitute a patient tracking system, can include a Hall effect switch in which the status can be transmitted to the system (col.9, lines 2-10).

As to claims 59-61, note discussion of claims 52-54 above and note that the universal tracker (26) includes the same energy emitting elements as the instrument is tracked in the same way as the instrument(col.5, lines 42-47 and 59-62). In addition, regarding the specificity of using infrared LEDs, Chader et al. fail to disclose that the LEDs are in the infrared wavelength. Shultz teaches, in a similar surgery system, that it would be advantageous to used infrared wavelengths (col.14, lines 52-59). Since Chader et al. failed to disclose any particular wavelength and it was known in this art to use infrared wavelengths in a similar system, as evidenced by Shultz, it would have been obvious to one of ordinary skill in the art to have used infrared LEDs in the Chader et al. device.

As to claims 69-71, Chader et al. in view of Acker et al. and Shultz is described above with respect to the smart instrument, computer system and sensor system. Chader et al. discloses a frame (24) and what looks like a band (Fig.1) to secure the reference markers with respect to the patient. Acker et al. discloses a similar tracking system in which the reference markers (96, col.7, lines 53-57) can secured to the patient by a band or strap, but could also include conventional surgical adhesive tape (col.7, lines 57-64). Since both Chader et al. and Acker et al. teach systems in which markers are secured to the body, it would have been obvious to substitute one fastening means for another to achieve the predictable result of securing the markers to the body. Use of a surgical adhesive tape would anticipate a sheet of flexible mesh material having markers on a first side and a layer of adhesive on the other side.

As to claims 76-78, considering the adhesive tape with the LED markers on it (as described immediately above) as the “smart instrument”, the claim is obvious for the reasons set forth above (note discussion of claim 58 above regarding the tracking system including a memory and thus a transceiver). It is noted that since the computer of Chader et al. can determine locations of the LEDs, determining such locations in 3D space on the flexible tape would inherently result in a contour. In addition, since Applicant's only structure for being “adapted to determine the contour of the smart instrument and perform a surface matching operation with a known contour" is a computer, the computer of Chader et al. is considered as being capable of performing such function. As to claim 78, since the flexible tape can move and still be detected, it is considered a dynamic reference frame.

5. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chader et al. in view of Acker et al. and Schultz and further in view of Brown et al. (U.S. Pat. 6,366,622).

Chader et al. in view of Acker et al. disclose use of radio waves (note discussion of claim 39) but fails to disclose any frequency range or wireless standard. Brown et al. teaches that the IEEE 802.11 is a standard used in the ISM radio frequency band (col.21, lines 30-37). The IEEE 802.11 standard is known radio frequency standard in the ISM band, which is free for all to use. It would have been obvious to one of ordinary skill in the art to have used any known radio frequency standard, and particularly one that is free for all to use.

6. Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chader et al. in view of Acker et al. and Schultz and further view of Simon et al. (US 2003/0073901).

Chader et al. disclose the device as set forth above including a ‘position marker’ on the screen but fails to specify that the marker is a line. Although any ‘position marker’ forming a representational graphic on the screen could be considered as including at least one ‘line’, Simon et al. disclose a representation in the form of a line (note 502, Fig.5A). It would have been obvious to one of ordinary skill in the art to have used what is known in the art for representing a surgical instrument on the screen, including a line as taught by Simon et al.

7. Claims 74 and 75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chader et al. in view of Acker et al. and Cosman (U.S. Pat. 6,405,072) and further in view of Moctezuma (U.S. Pat. 6,306,126) for the reasons set forth in numbered paragraph 9 of the previous Office Action, paper number 20090221.

8. Claims 79 and 80 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chader et al. in view of Acker et al. and Shultz and further in view of Cosman.

As to claim 80, Chader et al., as discussed above with respect to claim 35, fails to specify the type of sensors (22) in the sensor array for detecting the light from the LEDs (20). Cosman teach use of linear CCD cameras (col.4, lines 13-17) for detecting light from LEDs (col.4, lines 39-41) in a similar surgery system. Since Chader et al. failed to disclose any particular type of sensor and it was known in the image guided surgery art to use linear CCDs as the sensor in a similar system, as evidenced by Cosman, it would have been obvious to one of ordinary skill in the art to have used linear CCDs in the Chader et al. device.

As to claim 79, Chader further discloses at least one button (46, col.7, lines 8-11). The read switch control (48, Fig.2) can transmit status information (e.g., on/off) of the button and the computer is capable of performing an operation in response to said button (col.7, lines 11-16).

Response to Amendment

9. Applicant has attempted to disqualify reference U.S. Pat. 6,306,126 to Moctezuma under 35 U.S.C. 103(c) by showing that the invention was owned by, or subject to an obligation of assignment to, the same entity as Moctezuma at the time this invention was made. However, applicant has failed to provide a proper statement that the application and the reference were owned by, or subject to an obligation of assignment to, the same person **at the time the invention was made** and make such statement **in a conspicuous manner**, and therefore, the reference is not disqualified as prior art under 35 U.S.C. 103(a). Applicant must file the required evidence in order to properly disqualify the reference under 35 U.S.C. 103(c). See MPEP § 706.02(l).

Furthermore, the fact that U.S. Appl. 09/764,609, which is the parent application to U.S. Appl. 10/677,874, was assigned, according to USPTO records, to Howmedica Leibinger Inc. and the Moctezuma reference was assigned to Stryker Leibinger GmbH & Co KG, raises material doubt as to the accuracy of applicant's representation. Thus, the Examiner also requires objective evidence of common ownership of, or the existence of an obligation to assign, this application and the Moctezuma reference as of the date of the invention of this application.

In addition, applicant may overcome the applied art either by a showing under 37 CFR 1.132 that the invention disclosed therein was derived from the inventor of this application, and is therefore, not the invention "by another," or by antedating the applied art under 37 CFR 1.131.

Response to Arguments

10. Applicant's arguments filed May 14, 2009 have been fully considered but they are not persuasive.

Applicant's arguments are based on the amendments to the claims. The issued created by these amendments are specifically addressed in the rejections set forth above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John P. Leubecker whose telephone number is (571) 272-4769. The examiner can normally be reached on Monday through Friday, 6:00 AM to 2:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Linda C.M. Dvorak can be reached on (571) 272-4764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John P. Leubecker/
Primary Examiner
Art Unit 3739

jpl